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10/585,336

07/06/2006

Yoshiki Sakaguchi

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EXAMINER

HAN, KWANG S

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

07/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/585,336 | Applicant(s) SAKAGUCHI ET AL. | |
| | Examiner Kwang Han | Art Unit 1795 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/6/06, 9/29/06</u> . | 6) <input type="checkbox"/> Other: ____. |

ELECTRODE FOR NONAQUEOUS ELECTROLYTE SECONDARY BATTERY

Examiner: K. Han SN: 10/585,336 Art Unit: 1795 July 23, 2009

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figure 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 2, 3, 4, and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2, the recitation "a material having low electroconductivity" is present. Low is a relative term and it is unclear as to what the Applicant regards as the invention. Applicant is asked to clarify.

Regarding claim 3, the recitation "active material having a high capability of forming a lithium compound" is present. High is a relative term and it is unclear as to what the Applicant regards as the invention. Applicant is asked to clarify.

Regarding claim 4, the recitation "metal material having a low capability of forming a lithium compound" is present. Low is a relative term and it is unclear as to what the Applicant regards as the invention. Applicant is asked to clarify.

Regarding claim 9, the recitation "low capability of forming a lithium compound" is present. Low is a relative terms and it is unclear as to what the Applicant regards as the invention. Applicant is asked to clarify.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al. (WO 2004/095612, using US 2006/0115735 for translation and citation) in view of Kadoguchi (JP 11-354110, machine translation).

Regarding claims 1 and 15, Yasuda is directed towards a nonaqueous electrolyte secondary battery with a current collector layer formed on the outer surface of the negative electrode [Figures 1 and 8, Abstract]. Yasuda is silent towards having an output terminal attached to the surface of the electrode along the thickness direction.

Kadoguchi teaches a battery electrode with a charge collector having electrode tabs which are connected to the non-coated sections of the collector in a thickness direction to produce the electrode plate and improve productivity in production [Abstract]. It would have been obvious to one of ordinary skill in the art at the time of the invention to connect the electrode tabs (output terminals) connected to the surface of the current collector of Yasuda's battery in a thickness direction of the electrode because Kadoguchi teaches this allows for production of the electrode plate and improve productivity in production.

Regarding claim 2, Yasuda discloses the electrically conductive slurry containing the active material particles includes binders which would inherently have minimal electroconductivity [0085].

Regarding claims 3 and 14, Yasuda discloses the electrode to have a pair of current collecting surface layers with an active material layer disposed between the surface layers, the surface layer being in contact with an electrolyte, and the active material having high capability of forming a lithium compound [0041, 0118] (Figure 8) and a total thickness of the electrode to be between 10 to 100 μ m [0120].

Regarding claims 4 and 9, Yasuda discloses the active material is impregnated with material making up the surface layer which includes material having a low capability of forming a lithium compound to provide an electrical connection between the two surfaces of the electrode [0037, 0050, 0051].

Regarding claim 5, Yasuda discloses the surface layers to each have a thickness of about 0.3 to 10 μ m [0038].

Regarding claim 6, Yasuda discloses the surface layers to include microvoids (micropores) [0041].

Regarding claim 7, Yasuda discloses the microvoids of the surface layer to have an average open area of 0.1 to 50 μ m² and an open area ratio of 0.1% to 20% [0042].

Regarding claims 8 and 16-18, It is noted that claims 8 and 16-18 are product-by-process claims. "Even though product-by-process are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-

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by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In reThorpe, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claims 10-12, Yasuda discloses the material having low capability of forming a lithium compound is the same as the material making up the surface layer [0050] but also the metallic material having a low capability of forming a lithium compound includes several metals and alloys which include nickel which is preferred for enhancing the strength of the electrode further teaching the surface layers having a first (1) and second surface (2) can be made of the same or different material [0037].

Regarding claim 13, Yasuda discloses the active materials include silicon and tin [0045].

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./

Examiner, Art Unit 1795

/Dah-Wei D. Yuan/

Supervisory Patent Examiner, Art Unit 1795